the end of 1099, one was a Central Bank and one a Central Weaving Society, while 10 were Supervising Unions, leaving a balance of 745 primary societies, of which 601 were agricultural and 144 non-agricultural. There were also six Taluk Unions. 706 of these societies were actually at work in 1099. The number of members of primary societies has increased from 11,664 to 46,297 during the last four years. Calculating the strength of each family at five, it may be presumed that, on the average, one person out of every 17 of the population has come within the influence of the co-operative movement. Two more Supervising Unions have come into existence in the current year. The aggregate working capital of the societies has risen within the last four years from Bh. Rs. 2·50 lakhs to Bh. Rs. 8·33 lakhs, and the paid-up share capital from Bh. Rs. 1·09 lakhs to Bh. Rs. 4·32 lakhs. The number of loans issued by primary societies has increased from 6,082 to 18,793 and their value from Bh. Rs. 2,03,655 to Bh. Rs.5,44,360 within the last four years. The volume of deposits in the Central Bank, Trivandrum, has risen during the same period from Bh. Rs. 5,323 to Bh. Rs. 2,35,115. It is worthy of note that, in spite of unfavourable seasonal and other conditions towards the close of 1099, the arrears of overdues fell from 39·2 per cent. to 35 per cent. in the case of principal, and from 47·6 per cent. to 40 per cent. in the case of interest; but a great deal of leeway has still to be made up in the reduction of outstandings under these heads. Almost the whole of the sum of two lakhs of rupees, placed by the Government at the disposal of the Central Bank, for distribution through co-operative societies as loans to sufferers in flood-affected areas, has already been distributed. At the end of Dhanu, 1100, there were as many as 163 societies exclusively for the depressed classes, of which 85 were for Pulayas and Cheramars, 26 for Vālans, 23 for Arayas, 11 for Parayas and Sâmbavars, 16 for coast Christian fishermen and one each for Vêḷâns and Kānis.

31. Ports. The shipping at the ports is steadily improving, the number of steamers calling at them having risen from 37 to 201 during the last four years. The two steam winches with derricks, sanctioned for the port of Alleppey, have arrived and they will be installed on the pier forthwith. A scheme for the creation of a Landing and Shipping Dues Committee for the port of Alleppey was placed before the local mercantile community. Their remarks have now been received and orders will soon issue. At Trivandrum, work in connection with the extension of the pier is in progress, and land is being levelled for the provision of a larger stacking ground and for the erection of three zinc-roofed sheds for the storage of cargo.

32. Industries. The Department of Industries usually comes in for a certain amount of criticism. It has, however, to be remembered that the department was started only in 1094, *i. e.*, barely six years ago. The first two years were mostly spent in what might be termed reconnoitering; and when the department began to feel its way, its attention was concentrated on certain lines of work, the chief of which were (i) the creation of suitable facilities for research, investigation and demonstration for the four State scholars who were entertained in service in 1097 and 1098 on their return after specialising in leather, textiles, oil, and electrical and mechanical engineering, respectively, (ii) the encouragement of cottage industries and technical and industrial education, and (iii) the discovery of fresh uses for raw materials and of fresh markets for the country's produce.

33. The Leather Expert investigated the resources of Travancore in skins and tanning materials and has published a report which shows that there is scope for the establishment of half-a-dozen up-to-date tanneries in the State for the manufacture of leather, and that, although there may be some difficulty in finding suitable markets for finished leather, half-tanned leather may be readily disposed of in foreign markets. A building with suitable accessories for the demonstration of improved methods of tanning hides and skins with local tan-stuffs has been constructed at Karamanai near Trivandrum, and the Leather Expert has started tanning operations in it and is demonstrating the manufacture of light leather from kips, goat-skins and calf-skins and heavy leather from buffalo-hides. He has also visited all the private tanneries in the State and has suggested measures for remedying the defects in their working.

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34. The Textile Expert was directed to devote his attention first to the improvement of hand-loom weaving, which is the most important cottage industry in the country. For the introduction and demonstration of improved methods in weaving and dyeing, a central technical institute on a large scale is necessary. The required buildings are in process of construction within the premises of the School of Arts, which have been enlarged by the acquisition of adjoining lands. Pending their completion, a beginning has been made in a rented building, where the Textile Expert has taken six students each for training in weaving, dyeing and knitting, and is demonstrating improved methods of knitting and hand-loom weaving and the possibility of utilising indigenous dyes for dyeing. The institution is open to the public and it is hoped that the people interested in these matters will freely visit it. Two itinerant weaving parties have been entertained to work among cottage weavers in the southern and the northern taluks of the State respectively. It is through these parties that the results obtained by the experiments of the Textile Expert are spread among the numerous cottage weavers scattered over the whole State. It is reported that about 200 dobbies were newly introduced by these parties into the country during 1099. Two depôts have been opened for the sale, at cheap rates, of loom accessories to cottage weavers, one at Trivandrum and the other at Nagercoil, and the itinerant parties also carry for sale these accessories to the cottage weavers' doors.

35. The Oil Chemist, now known as the Industrial Chemist, made a survey of the oil resources of the State, studied the present methods of extraction of the various commercial oils and submitted a report which has been published. He has conducted researches on the refinement of some of these oils in the laboratory annexé, constructed in 1098, in the premises of His Highness the Maha Raja's College of Science, for the purpose of enabling the experts of the department to carry on research in collaboration with the staff of the Science departments of the College. The other research work in the laboratory included methods of preserving ginger, the application of indigenous tanning materials to the tanning of leather and the preparation of dyes from indigenous dye-stuffs.

36. The researches made by the late Mr. C. Kerala Varma in the field of inorganic chemistry led to the discovery of a flux of leptynite, a rock found in large quantities in Travancore, with kaolin suitable for the manufacture of stoneware, and this manufacture is now carried on in the School of Arts. Suitable white and colored glazes for this stoneware have also been produced out of Travancore minerals. In view of the unlimited quantities of kaolin available in the State, the feasibility of manufacturing porcelain on a large scale has attracted the attention of the Government and negotiations are in progress for the examination of the material by a ceramic expert. The question of issuing a license for quarrying kaolin and refining it with a view to its being used for sizing purposes is under the consideration of the Government. The utilisation of the vast kaolin beds of the State for industrial purposes is likely to add considerably to the wealth of the country. The analysis of the lignite beds of Varkala is in progress, and there are great possibilities of their utilisation for the manufacture of fuel. Similarly, ilmenite, the black sand which is a by-product of the monazite industry and which is also available in large quantities, is likely to have a great future, as the attempts to utilise it for the manufacture of white paint have been proved to be successful. Government are permitting monazite licensees to export limited quantities of this mineral on favourable seigniorage rates.

37. The Industrial Engineer has collected statistics concerning the production, consumption and cost of power at the several industrial centres in the State, and has investigated, besides the Kallar Hydro-Electric Scheme and the Trivandrum Electric Supply Scheme, some of the water-falls in the State for testing their capacity to produce electricity. Of these, the falls in the Pallivasal river are the most promising, as they are likely to yield nearly 10,000 H. P., without storage arrangements, at the comparatively small cost of Rs. 20 lakhs. The scheme will no doubt need further detailed examination. The Industrial Engineer has also examined the methods of pumping employed for *punja* cultivation in Kuttanad and is taking

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steps to reduce the wastage of power involved in them. The working of the Steam Boilers and Prime Movers Regulation has been entrusted to him and forms no inconsiderable portion of his duties.

38. The details of the procedure connected with the grant of loans for the encouragement of cottage industries were settled towards the close of 1099 and eight industrial loans involving a sum of nearly Rs. 8,000 have already been disbursed during the current year. It is hoped that the balance of Rs. 12,000 budgeted under this head will also be spent before the close of the year. With a view to encourage the manufacture of desiccated cocoanut, the Government have recently sanctioned a loan of Rs. 25,000 to Mr. K. K. Joseph of Alleppey. The recommendations of the Economic Development Board in regard to the measures to be taken for the extension and improvement of button manufacture are under examination.

39. Much has been done in recent years for increasing the facilities for technical and industrial education in the State. The S. M. R. V. Technical Institute, Nagercoil, devoted to weaving, was re-organised in Kumbham, 1096, and had the full complement of students in all the three classes in 1099. Sanction has been accorded to the raising of the strength of the school in the current year. The Government School of Commerce, started at Alleppey in Chingam, 1097, has proved to be popular. The Malayalam class in elementary commerce had to be discontinued for want of sufficient response ; but instruction in Malayalam short-hand has been newly introduced. The Sri Mulam Technical Institute, opened in Trivandrum in 1095, has not been equally successful. Its object originally was to impart instruction in elementary mechanics to a class of fitters and in more advanced mechanics to a class of overseers. The fitters' class had to be abolished in 1099 owing to paucity of students. Classes for overseers in civil engineering and *maistries* have been opened instead to train candidates for the posts of sub-overseers, surveyors and *aminadars*. It is hoped that this alteration in the courses will make the institution more popular. The old Carpentry School at Quilon, which had become moribund, was remodelled and re-opened in 1098 for imparting instruction in carpentry and smithery. The carpentry section has alone been opened and it is not yet sufficiently strong. The workshop of the school has been fitted with wood-working machinery, purchased at a cost of more than Rs. 10,000 ; and this affords considerable facilities for the practical training of students in the manufacture of furniture. The stipends to the students in this school have recently been enhanced from Rs. 5, Rs. 6, and Rs. 7, to Rs. 8, Rs. 10, and Rs. 12, respectively, with a view to attract students from all parts of the State. I regret once more to note the tardy response which the facilities created for technical and industrial education are receiving in the country.

40. The grant-in-aid industrial schools for boys were, as you may remember, transferred from the control of the Director of Public Instruction to that of the Director of Industries with effect from the beginning of 1097. There were 39 aided and 16 unaided schools at the time. In pursuance of the orders of the Government approving the proposals of the committee appointed to suggest a better regulation of grants-in-aid to industrial schools, the grants to some schools had to be discontinued, with the result that, at the end of 1099, there were 36 aided and 62 unaided schools. Of the 36 aided schools, 28 were imparting instruction in cotton-weaving, 2 in coir industry, 2 in carpentry and smithery, one in rattan and bamboo industry, one in basket-making, one in mat-making, and one in drawing. The draft Technical Education Code, already published in the *Gazette*, is now undergoing suitable revision at the hands of the Director. There were also 12 aided technical schools for girls under the Director of Public Instruction in 1099. Weaving was taught in four of these schools, weaving and embroidery in one, and lace-making, embroidery, plain sewing and drawing in the others.

41. The British Empire Exhibition. The participation of Travancore in the British Empire Exhibition held at Wembley in 1924 has been availed of by the Department of Industries for exhibiting several of the raw materials and manufactured products of the country. Dr. Kunjan Pillai, Director of Agriculture and

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